

REMARKS

By this Amendment, Applicants amend claims 1, 11-15, 17, 21, 28, 29, 31, and 36-38. Claims 39-40 are previously canceled. Claims 1-38 remain currently pending.

In the Office Action, the Examiner withdrew the double patenting rejection of claims 1-38 under 35 U.S.C. § 101 and the rejection of claims 36-38 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Examiner also withdrew the objection to claim 21. The Examiner maintained the rejection of claims 1-7, 9-25, and 27-38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,529,604 to Park et al. ("Park") in view of U.S. Patent No. 6,263,022 to Chen et al. ("Chen"); and rejected claims 8 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Park in view of Chen in further view of U.S. Patent No. 6,678,653 to Tsushima et al. ("Tsushima").¹

Rejection under 35 U.S.C. § 103(a) based on Park and Chen

Applicants respectfully traverse the Examiner's rejection of claims 1-7, 9-25, and 27-38 under 35 U.S.C. § 103(a) as being unpatentable over Park in view of Chen, because a *prima facie* case of obviousness has not been established.

As an initial matter, Park and Chen fail to teach or suggest all elements of claims 1-7, 9-25, and 27-38. Amended independent claim 1 recites a method for processing audio signals comprising a combination including, for example, "determining, according to a psychoacoustic model, a plurality of scale factors corresponding to the plurality of sub-bands according to respective noise tolerance of each of the sub-bands", and "for

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

each scale factor that exceeds a threshold value, bit shifting the quantized data in the corresponding sub-band by the scale factor.” Park fails to teach or suggest at least these features of independent claim 1. For example, the Examiner concedes that “PARK does not disclose bit shifting the quantized data.” (Final Office Action at 5.) In addition, Park fails to teach or suggest the claimed feature of “determining, according to a psychoacoustic model, a plurality of scale factors,” and “for each scale factor that exceeds a threshold value, bit shifting the quantized data in the corresponding sub-band by the scale factor.” Chen fails to cure these deficiencies of Park.

Chen teaches “[an] adaptive quantization controller receives at least one quantization parameter from the base layer circuit and, in response thereto, determines a corresponding shifting factor for shifting a bit plane associated with the enhancement layer video data.” Chen, abstract. However, nowhere does Chen teach or suggest that the “shifting factor” is determined “according to a psychoacoustic model,” as recited in amended independent claim 1. Moreover, Chen’s teaching of shifting a video bit plane does not constitute “for each scale factor that exceeds a threshold value, bit shifting the quantized data in the corresponding sub-band by the scale factor,” as recited in amended independent claim 1 (emphasis added).

The Examiner alleges that “CHEN teaches bit shifting the quantized data in the sub-bands (‘perform bitplane shifting of frequency domain coefficients’, column 6, lines, 36-37) by the respective scale factors ... if they exceed a threshold value (‘by identifying blocks or macroblocks that have . . . high quantization errors, and the like’, column 6, lines 60-62).” (Final Office Action at 5.) Applicants respectfully disagree.

In the cited sections, Chen teaches “identifying blocks or macroblocks that have high levels of activity between frames, high quantization errors, and the like.” Chen, column 6, lines 61-63, emphasis added. However, Chen does not teach or suggest performing bit shifting of quantized data in a corresponding sub-band “for each scale factor that exceeds a threshold,” as recited in amended claim 1 (emphasis added).

Further, Chen states that “frequency bitplane shift controller 270 may perform bitplane shifting of frequency domain coefficients (e.g., DCT coefficients).” Chen, column 6, lines 35-37. However, Chen’s teaching of bitplane shifting does not constitute “bit shifting the quantized data in the corresponding sub-band by the scale factor,” as recited in amended claim 1 (emphasis added).

Therefore, neither Park nor Chen, taken alone or in any reasonable combination, teaches or suggests all elements of independent claim 1. For at least this reason, amended independent claim 1 is allowable over Park in view of Chen.

Moreover, the teachings of the references are not sufficient to render the claims *prima facie* obvious, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified. See M.P.E.P. § 2143.01, which cites *In re Ratti*, 270 F.2d at 810, 123 USPQ at 349 (CCPA 1959). In spite of the Examiner’s allegation that “it would have been obvious to use the scale factors of Park to adjust the bit shifting factor of Chen” (Office Action at 3), the combination of Park and Chen would change the principle of operation of Park. For example, Chen discloses “the shifting factors are determined solely as a function of the base layer video and other non-enhancement data related information,” Chen column 7, lines 30-32, emphasis added. However, Park discloses “scale factors for the

respective scale factor bands ... are generated,” Park column 9, lines 45-47. If the shifting factors are determined using the method taught by Chen, they can not form the scale factor bands as required by Park. Therefore, using the teaching of Chen to modify Park would change the principle of operation of Park, and thus a *prima facie* case of obviousness is not established.

Further, a *prima facie* case of obviousness is not established for the additional reason that a person of ordinary skills in the art would not have been motivated to combine the teachings of the two references. Park discloses “[t]he quantizing portion 160 performs scalar quantization so that the magnitude of the quantization noise of each scale factor band is smaller than the masking threshold ... If quantization fulfilling such conditions is performed, scale factors for the respective scale factor bands and quantized frequency values are generated.” Park column 9, lines 40-46, emphasis added. Thus, to reiterate Park’s teaching, “the magnitude of the quantization noise of each scale factor band is smaller than the masking threshold” even before “scale factors for respective scale factor bands” are generated. However, Chen teaches “to identify blocks or macroblocks that are visually more important than other blocks or macroblocks, such as by identifying blocks and macroblocks that have ... high quantization errors,” and “[i]f a macroblock or block is identified as being more visually important ..., then the bit-plane of the identified macroblock or block can be shifted up.” Chen column 6, lines 59-66, emphasis added. Therefore, using the criteria of Chen for “bit-plane shifting”, a person of ordinary skill in the art would have found that no bit-plane shifting needs to be applied to Park, and thus would not have been motivated to combine the teachings of Park and Chen.

For at least reasons set forth above, Park and Chen can not be combined in the manner proposed by the Examiner and do not establish a *prima facie* case of obviousness. Accordingly, Applicants respectfully request withdrawal of the Section 103(a) rejection of claim 1. Applicants also request withdrawal of the Section 103(a) rejection of claims 2-7 and 9-10, at least in view of their dependence from an allowable base claim.

Moreover, amended independent claims 11, 21, 28, 31, and 36, while of different scope, include similar recitations to those recited in amended independent claim 1. Claims 11, 21, 28, 31, and 36 are therefore also allowable for at least the reasons stated above with respect to claim 1. Accordingly, Applicants respectfully request withdrawal of the Section 103(a) rejection of claims 11, 21, 28, 31, and 36.

Because claims 12-20 depend from claim 11, claims 22-25 and 27 depend from claim 21, claims 29 and 30 depend from claim 28, claims 32-35 depend from claim 31, and claims 37 and 38 depend from claim 36, either directly or indirectly, Applicants also request withdrawal of the Section 103(a) rejection of claims 12-20, 22-25, 27, 29, 30, 32-35, 37, and 38, at least in view of their dependence from an allowable base claim.

Rejection under 35 U.S.C. § 103(a) based on Park, Chen and Tsushima

Applicants respectfully traverse the Examiner's rejection of claims 8 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Park in view of Chen further in view of Tsushima. As explained, claims 8 and 26 are allowable over Park in view of Chen, at least in view of their dependence from allowable independent claims 1 and claim 21, respectively. Moreover, Tsushima fails to cure the deficiencies of Park and Chen. For example, Tsushima fails to teach or suggest at least the features of

"determining, according to a psychoacoustic model, a plurality of scale factors corresponding to the plurality of sub-bands according to respective noise tolerance of each of the sub-bands," and "for each scale factor that exceeds a threshold value, bit shifting the quantized data in the corresponding sub-band by the scale factor," as recited in claim 1. Therefore, Applicants also request withdrawal of the Section 103(a) rejection of claims 8 and 26 for at least being dependent from an allowable independent claim.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

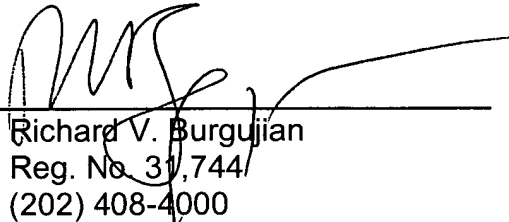
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By: _____


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